"*Familiar in their Mouths as HOUSEHOLD WORDS.*"—SHAKESPEARE.

HOUSEHOLD WORDS.

A WEEKLY JOURNAL:

CONDUCTED BY CHARLES DICKENS.

N° 58.] SATURDAY, MAY 3, 1851. [PRICE 2*d*.

THREE MAY-DAYS IN LONDON.

III. THE MAY PALACE. (1851).

WHEN Aladdin raised a palace in one night, whose walls were formed, not of layers of bricks, but of gold and silver, and whose hall, with four-and-twenty windows, was adorned with all the riches of the world, he accomplished this wonder by the agency of the Slaves of the Lamp.

Let us consider how many Slaves of the Lamp have been employed in constructing the Palace of Industry—that "fabric huge," which "rose like an exhalation" in the winter of 1850 and the spring of 1851. From the first "fortuitous liquefaction" of saltpetre among the sands of the river Belus, as mentioned by Pliny,* to the production, in three months, of many thousand pounds of sheet-glass, for one building, there have been steps of progress, some faint and many wholly obscured; but which in their results are indications of the general advance of the world in civilisation and happiness.

At the beginning of the sixteenth century light was admitted to dwellings through wooden lattice-work. The houses of the more luxurious had horn lights; but the manufacture of window-glass having been introduced into this country in 1557, a glass-factory was set up in Crutched Friars, London. It was then considered so precious an article, that in 1567 the glass of the windows of Alnwick Castle was "taken down, and laid up in safety," when the great Earl was not residing there; and when he came to his castle, "the same was set up of new, with small charge to his lordship." Glass was then growing into use for windows; but the fixing of the panes was a rude operation. In 1584, we find that "glass is come to be plentiful;" so that lattice and horn had grown into less use. But the little quarry of the sixteenth century was a very different thing from the sheet-glass of which the Exhibition building is composed. It is not more than fourteen years ago since the manufacture of this peculiar species of glass was introduced into England. The factory which first produced, here, that sheet-glass—a material far superior to crown-glass, and far less costly than plate-glass, which has given a finish of beauty to the houses of the middle ranks—has made the material for the Palace of Industry, which gives it the popular name of the Crystal Palace. In 1837 there was a difficulty in making this glass of the length of three feet, at all; but, during last year, there were produced in a few months nine hundred thousand cubic feet of sheet-glass, each pane being forty-nine inches in length. The weight of this glass is four hundred tons. In the first year of this century there were less than three thousand tons of window-glass used in the whole of England; hence, the Crystal Palace has consumed as much glass as one-eighth of Great Britain consumed in 1801. If Science had not been at work in every direction for the last fifty years—Political, as well as Chemical and Mechanical Science—the four hundred tons of sheet-glass could not have been produced. The Genii of the Lamp were at hand, in the form of skilful manufacturers and wise statesmen. Sir Robert Peel, who destroyed the vexatious and burdensome excise upon glass in 1845, is a builder of the Palace of Industry as truly as the Messrs. Chance, who brought to Birmingham the manufacture of German glass, some ten years before. The actual tax upon the glass used in the great building, previous to its total abolition, would have amounted to very nearly thirty thousand pounds; to say nothing of the greatly increased cost that would have been the result of a continued inteference of the exciseman with the manufacture.

The other important material used in the construction of the May Palace, is Iron. The quantity required for it would have astounded our forefathers. The quantity of Iron made in England and Wales in 1740, was estimated at some seventeen thousand tons. To smelt it, charcoal was then employed in the furnaces. Subsequently, iron ore was smelted by means of coke, and at the beginning of the present century, a hundred and fifty thousand tons were made. In 1848, above two million tons of British iron were produced. The demand for iron has been constantly increasing since the days of railroads and iron steamboats; but the price has been as constantly kept down by the agency of Science. Ingenious iron-masters employed every resource of chemical and mechanical

* See "Household Words," Vol. ii., page 433.

knowledge to improve the quality, and lessen the cost of production. Labour was more efficiently organised. Improved engines raised coal more economically from the pits; and, sixteen years ago, came the great invention of the hot-blast. The expensive process of converting coal into coke was at once saved. The furnace was supplied with raw coal; and a stream of hot air, equal to the temperature necessary for melting lead, being constantly poured in, the whole process of smelting became one of comparative ease and certainty. The iron bridge of Coalbrookdale was a wonder of the world in 1779. The wonder of 1851 is the iron and glass structure of Hyde Park, with its three thousand three hundred columns, its two thousand two hundred and twenty-four girders, its eleven hundred and twenty-eight intermediate bearers, and its thirty-four miles of guttering tube, all of iron. To have produced this structure at all, by any amount of expenditure, would have been an impossibility a century ago. It is a triumph of energy and skill to have produced what all agree to call a palace, at a less cost per cubic foot than that of a barn.

Glass, iron, and wood, are the only materials employed in the construction of this building—"dry material, ready at once for the introduction of articles for the Exhibition." Science has not, ostensibly, done so much for timber, as for glass and iron; but the influence of knowledge upon production is to be traced here, as in everything which largely administers to the conveniences of life. Knowledge has been at work in two ways in diminishing the cost of timber; it has lessened the expense of freight and carriage; it has got rid of enormous protective duties. Canada and Norway have been rendered somewhat more equal in the commercial race. We buy our timber cheaper by one-half; we reckon our consumption of timber by an increase of five hundred per cent. in fifty years.

This, then, is a brief view of the influence of a Lamp, more durable in its effects than that of Aladdin, upon the materials of our May Palace. Let us say a few words upon the labour employed in its construction.

The principle of the whole building—that of a succession of similar parts upon a uniform plan—allowed the very utmost amount of union of forces. Every piece of iron, or wood, or glass, that went to form a whole, was one of many pieces of similar dimensions. There was no measuring or cutting. Machinery was employed in the preparation of sash-bars and gutters, in mortising, and in rough painting; but in all these operations there were no varying applications of ingenuity—scarcely any manipulation. All the elements of cheap production were thus called into action.* But the amount of manual labour, in the actual putting together these materials, was enormous, to have accomplished such a result in six months. Herodotus tells us, that the great Pyramid of Egypt employed a hundred thousand men, for twenty years, in its erection. The Palace of Industry will, most probably, be swept away in a generation or two, whilst another thousand years will leave the great Pyramid unscathed. But the influence of one building and of the other is not to be measured by their comparative duration. The monument of despotism remains, barren as the sands upon which it is reared. We know nothing certain of its construction, beyond the fact recorded by Herodotus, that the food of the labourers cost sixteen hundred talents of silver. The labour employed upon our Palace of Industry, as compared with the labour which raised the Pyramid, is as one to two thousand. Yet, which labour will work the greatest amount of good to the human race? History has nothing to tell of the uses of the Pyramid. When history shall record that a Temple of Peace was erected in London, in 1851, to which all the nations brought the trophies of their arts, it will forget that there were amongst us prophets of evil, who would desire to keep the great family of mankind in jealous isolation; and will remember only the grandeur of the spectacle, when every clime, without distinction of government or religion, sent its ambassadors of industry to the capital of the world, to teach and to learn, to give and to receive.

It was a remarkable sight on the morning of the second of April, the last day for the reception of heavy articles for exhibition, to look upon the long line of waggons, slowly moving westward from Hyde Park Corner, to deposit their loads before nightfall. It was more wonderful to behold the varied industry within the building. It is no exaggeration to say that there were thousands intensely occupied, each with his own work of unloading or unpacking. The great struggle was in the centre of the western aisle, where the heavy British articles of models, or machinery, were deposited. In the Foreign department, the allotted spaces were filled with chests, bearing inscriptions in English, French, German, and Italian. Fragments of sculpture, heads and feet of colossal statues, were spread in wild confusion on the central floor. In the furrows of the glass roof were troops of workmen, repairing the defects of the glazing. Painters hung upon fragile scaffolds, giving their last tints to the massive girders. Bazaars were springing up in the enclosed divisions; and cases were being constructed in the galleries, brilliant with plate-glass, tasteful and substantial. Here and there, ponderous organs began to grow into shape, and the heroes and saints of painted glass to receive due form and proportion. The department of machinery appeared a chaos of unshapeable matter, the disjointed skeletons of mighty powers. The

* For an extended description of the construction of the Palace of Glass, the reader may be referred to page 385 of our second volume.

agricultural implements alone seemed ready for their work; as if they knew they must be up and doing, at a time when skill alone can cultivate to profit, and busy Science must take the place of lazy Protection.

Another fortnight produces a marvellous change in the aspect of the Palace of Industry. On the 16th of April the artisans of the building are nearly gone. The sod, upon which laden wains were crushing together at the beginning of the month, is floored over. The scaffolds are cleared away. A solitary painter, here and there, is finishing the rails of the galleries; but the structure is essentially complete. It is a wondrous fabric; sublime in its magnitude, beautiful in its simplicity. The venerated elms of Hyde Park are budding in their vast conservatory, and their leaves will welcome our May-Day. Singular effects of light are produced by the character of the building; and in the dim perspective of its roofs the prevailing blue shows like an aerial vault. The divisions of the vast area into geographical and industrial departments no longer look cold and formal. The long vista of the central aisle becomes longer to the eye, for the continuous line of sculpture gives a measure to the distance. Draperies are covering the partitions of the side aisle, making ready for the display of every variety of textile fabric—from the shawl of Cashmere to the Bandana handkerchief of Glasgow. Packages are being rapidly opened, and the ponderous chests carted away. The noise of the hammer is still heard; but the workman is now employed in the adjustment of machinery, the fitting of models, or the fixing of counters and glass-cases. In the Austrian division beautiful *parquet* floors of oak are being laid down. In the English, scagliola workers are giving the last polish to their specimens; and ceilings and walls of brilliant paper-hangings are proclaiming our tardy emulation.

Another fortnight brings us to the May-Even of 1851.

It is not our province to write descriptions of the "riches fineless" of our May Palace. Its growth, and the gradual unveiling of its manifold industries, have been suggestive to us of many feelings of admiration of the present, and confidence in the future. It is ennobling to behold any vast co-operation for a great public good. The spirit which prompted this enterprise was generous and noble; the industry which has carried out the scheme is worthy of all praise. But let it not be forgotten that to the Exhibitors belongs the chief collective honour. There never was seen, in the world, such a Museum of the products of industry, and of the instruments of production. It is almost safe to predict that such another will never again be beheld. The cost of the building is insignificant when compared with the expenditure of the Exhibitors. The expenditure upon this Exhibition may be valued by hundreds of thousands. Few will derive any immediate gain in money-value from their anxiety and their outlay. It is a generous emulation that has prompted, for the most part, this wondrous display. There have been principles at work beyond what has been unjustly considered the sole attribute of the commercial character. There is the love of fame—there is the pride of country;—but there is even something more. There is the determination to assert the dignity of labour; to manifest to those who hold that the world is made for the few, that throughout the habitable globe there are the same agencies at work which have given the mechanic of the nineteenth century a greater command of the comforts of life than was possessed by the feudal lord of the sixteenth. Here are the evidences.

We repeat it is not for us to enumerate them. The Shepherd in Homer, when the stars shine clear about the silver moon, beholds the signs that glad his heart; the astronomer catalogues the known stars, and watches for undiscovered planets. We are like the shepherd, in gazing upon the glad signs of human progress. When we look upon the sumptuous furniture that denotes the luxury of the Austrian capital, we turn to the plain school-room desks and chairs of the United States, and learn the comparative importance of the necessities of the humble, and the artificial wants of the great. When we acknowledge that our sculptors (those who have chosen to exhibit here) contrast unfavourably with the bolder artists of France and Germany; or when we see no English carvings equal to those of Florence, and no bronzes to be placed in rivalry with those of France, we specially think of the wondrous processes which have sent tasteful articles of utility into the dwellings of the tradesman and the artisan—we turn to our potteries, our electro-plate works, our glass-houses. In comparison with the block of marble from the Grecian quarry, that gave Phidias the material of his Theseus, we can look upon the same granite that formed Waterloo Bridge. If Rome sends her costly mosaics for the halls of princes, Cornwall shows her serpentine and porphyry for the cheap adornment of our common English hearths. Belgium exhibits her richest laces—it is her ancient and proper pride; India brings her silk and golden shawls; Tunis her embroidered tissues; Persia her gorgeous carpets. But here are also the ribbons of Coventry, the shawls of Paisley, the calicoes of Manchester, the broadcloths of Leeds. They are for the comfort and the decent ornament of the humblest in the land. And here, too, are the instruments by which the humblest have been enabled to possess them—the spindles and the looms in their most completed organisation. But here are also the scientific instruments which suggested and perfected the spindles and looms; which are the guides of mechanical invention;

which regulate its application. Some of the noblest works of mechanical genius are here before us—not mere models, but in all the grandeur of their perfect action. Under one roof may be seen the whole process of a cotton-factory; and a few yards off the great steam-hammer, which forges an anchor, or cracks an egg-shell, with an equal regulation of its power. Here is the hydraulic machine which lifted the mighty tubes of the Britannia Bridge to their high level; and here the Jacquard loom, which can weave such embroidery in an hour as would demand a life-long labour from the nicest sempstress of the Ind. Here is the steamboat engine, which has brought the produce of the most distant lands to grace this first of May; and here the locomotive, which, the proud equal of the steamboat, has given new ideas of time and space to the civilised world. Here, finally, is the paper-machine, and here the printing-machine—the instruments by which all knowledge is diffused and perpetuated—without the prototypes of which, Bacon might have speculated in vain, and Watt have never invented. In the age which has produced the steamboat, the railroad, and the printing-machine—the three powers which are more and more lessening the inequalities of condition, of locality, of laws, amongst the great family of mankind—the assemblage of the Industry of all Nations, and the people of all nations, in the island whose ships bear the products of the earth to and from every port—whose arts, imitative at first, are now models of every form of labour—whose language and literature are spreading over vast regions, compared with which her area is but a speck on the globe,—such an assemblage appears to us a holy tribute to the Parent of Industry, and of all good. For the mighty Spirit of the universe is one and the same in His manifestations—whether He hold the stars in their eternal courses, or work, through the mind of man, to enrich our May Palace with the produce of arts, which even outworn mythologies, not grossly erring, derived from Heaven; but which a purer religion may teach us to believe are amongst the instruments—in due companionship with pure science, with literature, with "divine philosophy"—by which God is accomplishing the destinies of the human race.

"And what," say some, "is to be a benefit to the visitors of the Exhibition, who are neither artisans nor merchants—who are neither buyers nor sellers,—some of whom think, as Southey proclaimed, 'that the nation which builds on manufactures sleeps upon gunpowder,'—who believe that the age of Maypoles might come again, with piping shepherds, and 'knitters in the sun.'" We answer—the enlargement of your minds, and of all minds—that practical education which may teach men to comprehend rightly the past and the present. These are the manifestations of the spirit of an age which is not an age of exclusiveness. These are the works of the heroes of this age. This is *their* May-day celebration. Look upon it reverently. Do homage to the promoters of it, in all love and loyalty. Here is *our* "LADY OF THE MAY." But in this goodly work there is hope beyond performance—hope of "Peace on earth, good-will towards men."

> "Now the bright morning star, day's harbinger,
> Comes dancing from the east, and leads with her
> The flowery May."

THE LAST OF THE SEA-KINGS.

THE first of the Sea-kings may have been good men of business in their own day, but it is a great many years ago since it was respectable to be a thief—except in poems and romances. The last Sea-kings of the Caucasian race were hunted down, in a tradesman-like manner, by the increasing pack of commerce; and wound up, very generally, the concluding canto of their lives under the gallows, at Execution Dock. The "Asia," in her ten or eleven day passages between New York and Liverpool, has never yet been cannonaded by a ship-load of gentlemen of Fortune. For, in the class *Raptores* of the human race—the men of prey—the genus *Pirate* is much more confined than it has been aforetime in its geographical distribution. It has ceased to be an European family. We have at our elbow certain volumes, printed in "the days when we went pirating, a long time ago," containing lives of pirates, compiled carefully from living testimony; and contemporary records at a time when those exceedingly free gentlemen abounded. Captain Charles Johnson, the biographer of these men, puts upon his title-page a motto, from Horace, about having blended the useful with the sweet. Sweet company he introduces to us, in good sooth! As for the usefulness, we recognise that, even in the present day. Many will cross the seas, to visit us, this year; it will do more than amuse us to consider what obstructions might have stayed their progress in the good old times of George the First or Second. How many of our guests would have been stripped, how many murdered, how many would have eaten their own ears with salt and pepper, we will not stop to imagine. Confining our attention to our own countrymen, who are not meaner and more cruel probably than Greeks, we shall go back a little farther than a century, and sketch the race of British Conrads as they then existed.

At the close of the Continental war, after the peace of Utrecht, privateering—which is legal piracy—lost its excuse, and piracy was undertaken for its own sake, and in defiance of the gallows. The mutinous sailor, thirsting for exemption from restraint, would find associates and plot. Thus Captain Green, of Bristol, in April, 1726, shipped William Fly,